REMARKS

The present remarks are in response to the office action entered in the above-identified case and mailed on September 3, 2008. Claims 1-78 are pending in the present application. Claims 1, 34 and 49 stand rejected under the judicially created doctrine of obviousness-type double patenting over claims 1, 35 and 49 of U.S. Patent No. 7,269,468 (the '468 patent). Claims 1-78 are rejected as being anticipated under 35 U.S.C. § 102(e) by U.S. Patent No. 6,834,370 to Brandl *et al.* (Brandl), or in the alternative under 35 U.S.C. § 103(a) as being unpatentable over the combined teaching of Brandl and U.S. Patent No. 5,903,886 to Heimlich *et al.* (Heimlich). Applicants respectfully traverse all grounds for rejection.

Obviousness-Type Double Patenting

In determining whether a non-statutory basis exists for a double patenting rejection, the first question to be asked is - does any claim in the application define an invention that is anticipated by or is merely an obvious variation of an invention claimed in the patent? MPEP § 804. An obviousness-type double patenting rejection of an application claim is appropriate when the claimed subject matter is not patentably distinct from the subject matter claimed in a commonly owned patent. *Id.* In the present case, claims 1, 34 and 58 are not anticipated by, nor are they obvious variations of, the invention claimed in claims 1, 35 and 49 of the '468 patent.

Each of the independent claims of the '468 patent relates, at least in part, to the configuration of outputs associated with a state machine implemented within a process control function block. Claim 1, for example, calls for providing a first graphical user interface via a display device to configure values of at least some outputs of a plurality of outputs of [a] function block for at least some states of a plurality of states of [a] state machine. Claim 1 further calls for receiving output configuration data via the graphical user

interface and storing the output configuration data on a computer readable medium. Claim 35 of the '468 patent includes language nearly identical to that of claim 1. Claim 45 of the '468 patent calls for a function block rather than a method of configuring a function block. Nonetheless, claim 49 calls for a user modifiable state machine configuration database including output configuration data indicative of values of at least some outputs of the plurality of outputs of the function block.

The claims of the present application, on the other hand, relate to configuring a state machine itself, rather than configuring the outputs of a state machine. Claim 1 of the present application, for example, calls for, among other things, receiving state transition data. The state transition data identifies a next state to which the state machine transitions following conditions within a process plant corresponding to various input state pairs defined by graphical elements of a graphical user interface display. Claim 34 calls for a method of implementing a state machine in a function block, and includes language calling for receiving state transition data that is nearly identical to that of claim 1. Claim 58 claims a function block entity that includes a user modifiable state machine configuration database. The state machine configuration database includes state transition data indicative of how a state machine is to transition among a plurality of states.

Comparing the claims of the present application with those of the '468 patent, the claims of the present application deal with configuration data defining how and when a state machine changes states, whereas the claims of the '468 patent deal with configuration data defining how the various state machine outputs will be set when the state machine is in various states. Data that defines how and when a state machine changes states is different from data that defines which state machine outputs are set when the state machine is in particular states. Since the '468 patent does not teach or suggest receiving and storing state machine configuration data, data that defines how and when the state machine will transition

between states, the claims of the present invention are patentably distinct from the claims of the '468 patent. They are not anticipated by the claims of the '468 patent nor are they obvious variations thereof. Because the claims of the present application are patentably distinct from the claims of the '468 Patent, the obviousness-type double patenting rejection is improper and should be withdrawn.

Rejection Under 35 U.S.C. § 102(e)

A claim is anticipated under 35 U.S.C. § 102(e) only if every element of the claim is found in a single prior art reference. The claims pending in the present application are not anticipated by Brandl *et al.* because Brandl *et al.* does not teach every element of any claim currently pending in the application. Independent claim 1, for example, includes a number of elements that are not disclosed in Brandl *et al.* Claim 1 calls for a method for configuring a state machine implemented in a function block associated with a process plant via a computing device having a display device and an input device. The state machine defines a plurality of states. In operation, the state machine transitions between the defined states based on the current state of the state machine, state machine configuration data that defines how and when the state machine transitions between states and the status of one or more inputs provided to the state machine. The method includes providing a graphical user interface displayed by a display device. The graphical user interface includes a plurality of graphical elements defining input/state pairs. The method further calls for receiving state transition data associated with one or more of the plurality of graphical elements via the input device. For each of the graphical elements for which state transition data are received, the state transition data identify a next state to which the state machine transitions following conditions in the process plant corresponding to the input/state pairs defined by the graphical elements. Finally, the method of claim 1 calls for storing the state transition data on a first computer readable medium associated with the function block.

As is clear from the language of claim 1 itself, and further elaborated on in the specification, a state machine is a logical construct that defines a plurality of states. Configuration data (rules) are provided which define how and when the state machine transitions between states. Transitions between states are determined based on the current state of the state machine and the logical state of one or more inputs to the state machine. For example, a state machine may define 3 different states. The configuration rules for the state machine may establish that the state machine is to transition to the third state only if a first state machine input is asserted while the state machine is in the second state. If the third input is asserted when the state machine is in the first state no transition occurs. Other configuration rules may define how and when transitions between the first and second states or between the first and third states occur. The method of claim 1 clearly relates to defining the configuration data, i.e., the rules for transitioning between states for a state machine, and implementing the configuration rules in a state machine function block of a process control system.

Brandl *et al.* teach none of the elements of the method for configuring a state machine called for in claim 1 of the present application. In fact, Brandl *et al.* do not disclose a state machine at all. With regard to claim 1 of the present application, the Examiner points to four different passages within the Brandl *et al.* reference and a number of figures. First, the Examiner points to Brandl *et al.* col. 1, lines 37-67 as teaching a state machine implemented in a function block associated with a process plant wherein the state machine defines a plurality of states and wherein the state machine transitions between states based on state machine configuration data and one or more state machine inputs, wherein the state machine inputs are associated with operation of the process plant. Brandl *et al.* col. 1, lines 37-67, however, makes no mention of a state machine, nor does it describe any functionality consistent with the operation of a state machine. Rather, Brandl *et al.* col. 1, lines 37-67

describes difficulties encountered in implementing batch processes in a process plant. The passage describes the processing plant divided into different manufacturing areas, each with one or more subordinate cells. Often the process cells will be required to produce different products depending on the company or customer needs. The process plant can maximize the use of its facilities by implementing variable flow paths between equipment and implementing a variety of process operations within each cell. None of this has any relevance to the configuration of a state machine implemented in a process control function block.

Second, the Examiner points to Brandl *et al.* col. 52, lines 23-35 and col. 49, lines 19-25 as well as Figs. 35, 72, 74, and 84-86 as teaching a graphical user interface displayed by a display device and including a plurality of graphical elements defining state machine input/state pairs. Again, the cited passages and drawings teach no such things. Col. 49, lines 19-25 describes a recipe editor that displays a general process recipe as a process dependency chart. Col. 52, lines 23-35 and Figs. 84-86 relate to flow charts depicting a sulferizing unit operating procedure and an esterifying unit operating procedure. The cited passage describes a list of process actions from a general recipe and a recipe segment from a master recipe corresponding to the process actions of the general recipe. Some of the various flow charts include language indicating that at different stages of the process flow various states are complete. This is a close to a discussion of a state machine that occurs in the entire Brandl *et al.* specification. Nothing remotely resembling a graphical interface that includes a plurality of graphical elements defining input/state pairs is disclosed in the cited passages, nor anywhere else in the Brandl *et al.* reference.

Third, the Examiner points to Brandl *et al.* Figs. 35 and 84-86 as teaching receiving state transition data associated with one or more of the graphical elements. However, as was discussed with regard to point two above, Figs. 35 and 84-86 merely show flow charts

illustrating various unit operating procedures contained in a master recipe of a batch process. The cited figures have no relevance whatsoever to the claimed element of receiving state transition data associated with one or more of the plurality of graphical elements via the input device, wherein for each of the one or more of the plurality of graphical elements for which state transition data is received, the state transition data identifies a next state to which the state machine transitions following conditions in the process plant corresponding to the input/state pairs defined by the graphical elements.

Fourth, and finally, the Examiner points to Brandl *et al.* col. 48, lines 1-25 and col. 28, lines 1-10 as teaching storing state transition data on a first computer readable medium associated with the function block in which the state machine is implemented. Brandl *et al.* col. 48, lines 1-25 relate to data entry screens for creating, editing and displaying information stored in a database. Object linking and embedding (OLE) is used to create, edit and display various recipe elements (*e.g.*, general recipe, master recipe, process stages, unit procedures, process operations, recipe segments, phase, site information, *etc.*) Brandl *et al.* col. 28, lines 1-10 teaches that material flow information, recipe segment information and equipment information may be stored in one or many databases. Again, the cited passage has nothing to do with storing state transition data on a computer readable medium.

The failure of Brandl *et al.* to disclose any one of these elements would be sufficient to render claim 1 allowable over Brandl *et al.* The failure of Brandl *et al.* to disclose any of these elements of claim 1 underscores the utter irrelevance of Brandl *et al.* to the subject matter of claim 1 of the present application. Since Brandl *et al.* does not disclose all of the elements of independent claim 1, claim 1 is not unpatentable under 35 U.S.C. § 102(e) over Brandl *et al.* Therefore claim 1 and all of the claims depending therefrom should be allowed.

The remaining independent claims include features similar to the features of claim 1 that were not disclosed by Brandl *et al.* For example, claim 18 calls for a tangible medium on

which machine readable instruction for performing substantially the same method as outlined in claim 1 are stored. Independent claim 34 calls for a method of implementing a state machine in a process control function block. The method includes, among other things, providing a graphical interface that includes a plurality of graphical elements for configuring state machine transitions, receiving state transition data, and storing the state transition data on a computer readable medium. Finally, independent claim 58 teaches a function block entity comprising a user modifiable state machine configuration database that includes data indicative of how the state machine is to transition between a plurality of states, wherein the state transition data comprises data for potential pairings of state machine states and one or more corresponding function block inputs, and wherein the transition data are indicative of a next state to which the state machine is to transition when the state machine is in a state corresponding to one of the state/input pairings and when the input corresponding to the state/input pairing is a particular value. All of these features of independent claims 18, 34 and 58 are not disclosed by Brandl *et al.* For these reasons all of the remaining claims are also allowable over Brandl *et al.*

Rejection Under 35 U.S.C. § 103(a)

In the alternative, the Examiner also rejected claims 1-79 under 35 U.S.C. § 103(a) as being unpatentable over Brandl *et al.* in view of Heimlich *et al.* Heimlich *et al* is cited in case recipe inputs taught by Brandl *et al.*, "which can be more than one or pair," are not considered a state machine pair, and if the processing of batch process recipes cannot be considered a state machine. The Examiner states Heimlich *et al* teaches a process that can be composed of a series of tasks where the process flows specifically contain an input pair into a state machine. The Examiner further states that Brandl *et al.* teaches a process control mechanism for a process plant and Heimlich *et al* teaches a process input and a control for an integrated circuit design plant. According to the Examiner, it would have been obvious to

one of ordinary skill in the art "to modify Brandl *et al.* to specifically include the state machine of Heimlich *et al* for purposes of showing an anticipated out from a particular set of recipes."

This analysis is flawed on numerous grounds. First as described in detail above, Brandl *et al.* teaches nothing whatsoever about a state machine. Brandl *et al.* does not teach a graphical user interface that includes a plurality of graphical elements defining input/state pairs. Brandl *et al.* does not teach receiving state transition data associated with one or more of the plurality of graphical elements identifying the next state that the state machine is to transition to when conditions in the process plant correspond to one of the input/state pairs defined by the graphical elements. And Brandl *et al.* does not teach storing such state transition data on a computer readable medium.

Heimlich *et al* is equally inapplicable to the claims of the present invention. The Examiner points to two passages in the Heimlich *et al* reference (col. 3, lines 55-67 and col. 9, lines 1-67) and a number of figures (Figs. 9, 10a-10c and 11a-11c) as teaching a process that can be composed as a series of tasks where the process flows specifically contain an input pair input to a state machine. Neither passage, however, teaches what the Examiner claims. Neither passage describes an input pair input to a state machine.

More importantly, though, even if Heimlich *et al.* taught exactly what the Examiner says it does, it still would not teach, in combination with Brandl *et al.*, all of the features of the invention claimed in claim 1 of the present application. Heimlich *et al.* does not teach providing a graphical user interface including a plurality of graphical elements defining input/state pairs as called for in claim 1 of the present application. Heimlich *et al.* does not teach receiving state transition data associated with one or more of a plurality of graphical elements, wherein, for each of the graphical elements for which state transition data is received, the state transition data identifies a next state to which the state machine transitions

following conditions in the process plant corresponding to the input/state pairs defined by the graphical elements. And finally, Heimlich *et al* does not teach storing such state transition data on a first computer readable medium associated with a process control function block.

Because the combined disclosures of Brandl *et al.* and Heimlich *et al.* do not teach or suggest every element of claim 1 of the present application, claim 1 and the claims depending therefrom are not unpatentable under 35 U.S.C. § 103(a). Since the remaining independent claims pending in the application include features similar to claim 1, the remaining claims are allowable over Brandl *et al.* and Heimlich *et al.* for the same reasons.

CONCLUSION

In light of the arguments given above, applicants respectfully submit that all claims pending in the present application are in condition for allowance. Accordingly, applicants request that the Examiner withdraw the rejections and move the case to issue. If, however, the Examiner has any questions regarding this response, the Examiner is encouraged to call applicants' attorney at the number provided below.

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